CURRICULUM VITAE

Name: Susanna M. Rybak

Citizenship: United States

Marital Status: Married

Education:

1974 - B.S., University of Massachusetts, Amherst, Massachusetts
1979 - Ph.D., Endocrinology, University of California, San Francisco, California

Postdoctoral Training:

1979-1981 - Research Fellowship, Postdoctoral Fellow, Department of Medicine, Stanford, California
1981-1982 - Research Fellowship, Postdoctoral Fellow, Neurobiology Department, Weizmann Institute of Science, Rehovot, Israel

Employment:

1979-1979 - Lecturer, Department of Biology, Mills College, Oakland, California
1983-1984- Research Associate, Department of Physiology and Biophysics, Harvard Medical School and Dana-Farber Cancer Institute, Boston, Massachusetts
1985-1989 - Research Associate in Pathology, Brigham and Women's Hospital, Boston, Massachusetts
1986-1989 - Assistant Professor of Pathology, Harvard Medical School
1989-1993 - Special Expert, Surgical Neurology Branch, National Institutes of Health, Bethesda, Maryland
1993-1998 Senior Investigator, Laboratory of Biochemical Physiology, National Cancer Institute, Frederick Cancer Research and Development Center, Frederick, MD
1998-date Head Molecular Targeting Group, Developmental Therapeutics Program, Division of Cancer Treatment and Diagnosis, National Cancer Institute, National Institutes of Health, Frederick, MD (GS 14,Tenured Associate Professor, equivalent)
1999-date Senior Investigator, Angiogenesis Resource Group, DTP, NCI

Visiting Appointments:

1973- Visiting Scientist, L'Hospital de Baviere and University of Liege, Liege Belgium
1980- Assistant to the External Examiner, Biochemistry Department, The Chinese University of Hong Kong, Shatin, New Territories Hong Kong
1985 Visiting Scientist, Biochemistry Department, University of Washington, Seattle, Washington
1989 Visiting Scientist, Biogen Corporation, Cambridge, Massachusetts

Honors and Other Special Scientific Recognition:

1965 Who's Who in American Colleges and Universities
1978 Achievement Rewards for College Scientists (ARCS) Foundation Scholarship Awardee
1979 ARCS Foundation Scholarship Awardee
1979-1982 National Institutes of Health Fellowship (3 year award)
1984-1985 Grant for Cancer Research from Elsa U. Pardee Foundation
1997 Japanese Society for the Promotion of Science (JSPS) Award
1995-1998 CRADA (CACR-0290) Continued Investigations of Onconase (3 yr award) from Alfacell Corp., Bloomfield, NJ
1998 Scientific Advisory committee, NMHCC Bio/Technology Conference Division
1999 CRADA (CACR-00746) Development of Antibody RNase conjugates, (3 yr award) from Immunomedics, Morris Plains,NJ
1999 Local Organizing Committee, 5th International Meeting on Ribonuclease, VA, May
1999 CRADA (00754) Development of recombinant RNase fusion protein (3 yr award) from Antisoma Research Laboratories, United Kingdom.
2000 Scientific Advisory Committee, NMHCC Bio/Technology Conference Division
2000 CRADA (00880) Shuffling of Recombinant RNases (3 yr award) from Maxygen, Inc. Redwood City, CA.
2001 Scientific Advisory Committee, Cancer Conferences LT
2001 Merit Award, National Cancer Institute, NIH
2001-2 NIH Intramural AIDS Targeted Antiviral Program Award (IATAP), co-investigator
2002 MTA-CRADA (1367)Combination therapy for lymphoma, Life Time Pharm.Inc.
2002 MTA-CRADA (1311) Recombinant Antibody Development, Dyax
2002 Scientific Advisor, First Recombinant International Antibody Conference, Europe
2001-2002 Scientific Board, Antisoma LTD, London, UK

Professional Activities:

1996/Spring Experimental Therapeutics Study Section I, Ad Hoc Reviewer
1996/Fall Experimental Therapeutics Study Section I, Ad Hoc Reviewer
1995- Reviewer: Proceedings of the National Acadamy of Science; Nature Biotechnology; Journal of Biological Chemistry; Journal of the National Cancer Institute; Bioconjugate Chemistry, American J. Pathology, Tumor Targeting,Clinical Cancer Res.J. Immunologial Methods (occasional other)
1997 Fogarty International Center, Fellowship Review Panel
1997-1998 Co-organizer, NCI-FCRDC seminar series for summer students
1998 National Science Foundation, Fellowship Review Panel
1998 Fogarty International Center, Fellowship Review Panel
1998 Editorial Board Journal of the International Society of Tumor Targeting
1998 North Carolina Biotechnology Center, Science & Technology Development Program, Ad Hoc Reviewer
2000-2002 International Union against Cancer, fellowship review committee, Geneva

Professional Societies:

1977-Date - American Society for Cell Biology
1980-Date - American Association for the Advancement of Science
1994-Date - International Society of Tumor Targeting
1996-Date- American Association for Cancer Research

Invited Talks:

Humanization of Immunotoxins, Strategies of Protein Targeting at Royal Free Hospital of London, 1991

Human Immunotoxins, Lederle Laboratories, Pearl River, New York, 1992

Human Immunotoxins, 9th Hammersmith Meeting, Applications of Monoclonal Antibodies in Cancer Therapy, Porto Carras, Greece, 1992

Human Immunotoxins, Gordon Conference, Drug Targeting and Delivery, New Hampshire, 1992

Human Immunotoxins, Designing New Therapeutic Strategies for Cancer and AIDS, PHS Technology Transfer Forum, Bethesda, MD, 1992

Cytotoxic Ribonucleases, NIH Research Day, Bethesda, MD, 1993
Human Immunotoxins, FDA, Bethesda, MD, 1993

Engineered RNase Constructs, 11th Hammersmith Meeting, Applications of Monoclonal Antibodies in Cancer Therapy, Lesvos, Greece, 1994

Immunotoxins Based on Human RNase, 5th Antibody Engineering IBC Conference, San Diego, CA, 1994

RNase Immunofusions, 8th AEK Symposium (German Cancer Society), Heidelberg,FRG

Single Chain Immunofusions Engineered with Human RNases, Exploring and Exploiting Antibody and IG Superfamily Combining Sites, Keystone Symposia, Taos, NM February, 1996

Studies with Targeted Onconase, Immunomedix, Morris Plains, NJ, April, 1996

RNases in the Treatment of Cancer and AIDS, Cooperative Research Center (CRC), Melbourne, Australia, August, 1996

Humanized RNase Based Immunofusions, 10th International Biotechnology Symposium, Sydney, Australia, August, 1996

Immunotoxins, CRC for Diagnostic Technologies, Brisbane, Australia, August, 1996

From an Angiogenic Factor to an Immunotoxin, Ribonuclease Minisymposium, Bloomfield, NJ, October, 1996

RNase Based Immunotoxins for Cancer Therapy, Department of Surgery, Keio University School of Medicine, Tokyo, Japan,March, 1997

Targeting Cancer Cells with RNase Chimeric Proteins, Department of Bioengineering, Okayama University, Okayama, Japan, March, 1997

Ribonuclease Based Immunotoxins for the Treatment of Lymphomas. Monoclonal Antibodies in Clinical Oncology, Santorini, Greece, May, 1997

Ribonuclease-Based Immunotoxins: Functional Studies. 8th Antibody Engineering IBC Conference, San Diego, CA, December, 1997

RNase-Based Therapeutics for Cancer and AIDS, Monoclonal Antibodies in Clinical Oncology, Santorini, Greece, May, 1998

Ribonuclease-sFv Fusion Protein, Antibody Engineering and Expression, Arlington, VA, June, 1998

Engineered and Human Ribonuclease-based Immunotoxins, 9th Antibody Engineering IBC Conference, San Diego, CA, December, 1998

RNase-based Anti-B Cell Therapeutics, 5th International Conference on Ribonuclease, Airlie Conference Center, Warrenton, VA, May 1999

Anti-angiogenic RNases, In Vitro Transformation Meeting, July 24-25, 1999, Cork, Ireland

Antibody enzyme fusions, Antibody Engineering Workshop, November 3-4, 1999, Heidelberg, FRG.

Developments in RNase-based Therapeutics, King Fredrico II University, November 8, 1999 Naples, IT

Antibody enzyme fusions , 10th Anniversary Antibody Engineering, December 6-9, 1999, San Diego, CA

Phage mediated biological delivery of RNase to tumors, Gordon Conference: Drug Delivery in Medicine, February 20-25, 2000, Ventura, CA

Anti-CD22 RNase conjugates, International Conference on Advances in Cancer Immunotherapy March 2-4, 2000, Princeton, NJ

RNase-based therapeutics: an update. Advances in the application of monoclonal antibodies in clinical oncology, May31-June2,2000, Samos, Greece.

Expression of Immunoenzymes in the milk of Transgenic animals. Cambridge Healthtech Institute, Recombinant Antibody Conference, June 5-6,2000, Baltimore, MD.

Differential Vascular Targeting. 5Th International Symposium on Predictive Oncology and Therapy, October 28-31, Geneva, Switzerland.

Changing the tumor specificity of a targeted RNase using patch library phage display.The 11th NCI-EORTC-AACR symposium on new drugs in cancer therapy, November 7-10, 2000

Phage Display Derived Human Antibody Against the CD22 receptor. 11Th IBC Antibody Engineering Conference, December 3-7, 2000, San Diego, CA.

Chair, Experimental Therapeutics Poster Discussion Session, AACR, New Orleans, March 2001

Immunoenzyme Therapy Targeting Mucin on Breast Cancer Cells, 18th Advances in the Application of Monoclonal Antibodies in Clinical Oncology, June 13-15th, 2001, Greece.

Targeted Apoptosis Workshop, London, November 20, 2001.

Targeted Apoptosis and RNA Damaging Agents, University of Koln, Germany, February 4, 2002

Targeted Apoptosis for the Treatment of Breast and Ovarian Cancer, London, February 6, 2002

Targeted Apoptosis and RNA Damaging Agents, University of Pennsylvania, Philidelphia, April, 21, 2002

Developing RNA Targeted Therapeutics for Cancer Treatment, Berlin, First International Conference on Recombinant Antibodies, May 13-15, 2002.

Immunoenzyme Therapy Targeting Mucin on Breast Cancer Cells, 19h Advances in the Application of Monoclonal Antibodies in Clinical Oncology, June , 2002, Greece.

Antibody-RNase Immunoconjugates for Treatment of Lymphoma, International Ribonuclease Meeting, Bath, June, 2002.

Antibody-RNase fusion proteins: Progress, ANTIBODY WORLD SUMMIT, Sept 16-18, 2002, Long Branch New Jersey.

Preclinical Results for Cancer Treatment of Rnase-based therapeutics, 9th Conference on Cancer Therapy with Antibodies and Immunoconjugates, Oct. 24-26,2002, Princeton, NJ.

Antibody-RNase fusion proteins, IBCs 13th Annual Conference on Antibody Engineering, December 1-4, 2002, San Diego, CA.

Antibody-RNase fusion proteins: Progress, ANTIBODY WORLD SUMMIT, February 16-18, 2003, San Diego, CA

Antibody Rnase-based Therapeutics, 19h Advances in the Application of Monoclonal Antibodies in Clinical Oncology, June , 2003, Cyprus

RNases in Pathology and Therapy, 19th International Congress of Biochemistry and Molecular Biology, July 200-24, 2003, Toronto

Drug Development Status:

1998 RFB4-Onconase (NSC 703939), Anti-B cell Immunoenzyme, approved National Cancer Institute, DN Stage II, formulation, pharmacology and primate toxicology

2001 RNase Technology Licensed as *Theranase*, Antisoma LTD, UK. Therapy for Breast and Ovarian Cancer

2002 RFB4-Onconase (NSC 703939), Anti-B cell Immunoenzyme, approved National Cancer Institute, Process Development Approved

Social Security No.: 029-32-2650

Present Address: 7411B Round Hill Road, Frederick, MD 21702

Publications:

1.Ramachandran, J., Farmer, S.W., Liles (Rybak), S.M., and Li, C.H.: Comparison of the steroidogenic and melanotropic activities of corticotropin, melanotropin and analogs with their lipolytic activities in rat and rabbit adipocytes. Biochim. Biophys. Acta. 428:347-354, 1976.

2.Ramachandran, J., Kong, Y.C., and Liles (Rybak), S.M.: Effects of ACTH and its O-nitrophenyl sulphenyl derivative and adrenocortical function in vivo. Acta Endocrinol. 82:587-599, 1976.

3.Ramachandran, J., Rao, A.J., and Liles (Rybak), S.M.: Studies on the trophic action of ACTH. Ann. NY. Acad. Sci. 297:336-348, 1977.

4.Liles (Rybak), S.M. and Ramachandran, J.: Regulation of 3 beta-hydroxysteroid dehydrogenase isomerase activity in adrenocortical cell cultures by ACTH. Biochem. Biophys. Res. Commun. 79:226-233, 1977.

5.Rybak, S.M. and Ramachandran, J.: Primary culture of normal rat adrenocortical cells. I: Culture conditions for optimal growth and function. In Vitro 79:599-604, 1981.

6.Rybak, S.M. and Ramachandran, J.: Primary culture of normal rat adrenocortical cells. II: Quantitation of steroid dehydrogenase stain. In Vitro 17:605-611, 1981.

7.Rybak, S.M. and Ramachandran, J.: Comparison of the structural features of corticotropin required for stimulation of steroidogenesis and cAMP production in rat and rabbit adrenocortical cells. Int. J. Pept. Protein Res. 18:148-153, 1981.

8.Rybak, S.M. and Stockdate, F.E.: The mitogenic effects of lithium chloride in BALB/c-3T3 fibroblasts and Madin-Darby canine kidney epithelial cells. Exp. Cell. Res. 136: 263-270, 1981.

9.Rybak, S.M. and Ramachandran, J.: Mechanism of induction of 3ß-hydroxysteroid dehydrogenase isomerase activity in rat adrenocortical cells by corticotropin. Endocrinology 111:427-433, 1982.

10.Ginzburg, I., Rybak, S.M., Kimhi, Y., and Littauer, U.Z.: Biphasic regulation by dibutyryl cyclic-AMP of tubulin and actin mRNA levels in neuroblastoma cells. Proc. Natl. Acad. Sci. USA. 80:4243-4247, 1983.

11.Rybak, S.M., Ginzburg, I., and Yavin, E.: Gangliosides stimulate neurite outgrowth and induce tubulin mRNA accumulation in neural cells. Biochem. Biophys. Res. Commun. 116:974-980, 1983.

12.Ginzburg, I., Scherson, T., Rybak, S.M., Kimhi, Y., Neuman, D., Schwartz, M. and Littauer, U.A.: Expression of mRNA for microtubule proteins in the developing nervous system. In: Cold Spring Harbor Symposia on Quantitative biology. Cold Spring Harbor Press, New York, 783, 1983.

13.Rheinwald, J.G., O'Connell, T.M., Connell, N.D., Rybak, S.M., Allen-Hoffman, B.L., LaRocca, P.F., Wu, Y.J., and Rehwoldt, S.M.: Expression of specific keratin subsets and vimentin in normal human epithelial cells - function of cell type and conditions of growth during serial culture. Arranged by Arnold J. Levine: Cold Spring Harbor Conferences on Cell Proliferation and Cancer: The Cancer Cell. Cold Spring Harbor, New York, Cold Spring Harbor Press, 1983, 217-227.

14.Littauer, U.Z., Zutra, A., Rybak, S.M. and Ginzburg, I.: The expressionof tubulin and various enzyme activities during neuroblastoma differentiation. Prog. Clin. Biol. Res. 175: 193-208, 1985.

15.Lobb, R.R., Rybak, S.M., St. Clair, D.K., and Fett, J.W.: Lysates of two established human tumor lines contain heparin-binding growth factors related to bovine acidic brain fibroblast growth factor. Biochem. Biophys. Res. Commun. 139:861-867, 1986.

16.Rybak, S.M., Fett, J.W., Yao, Q.Z., and Vallee, B.L.: Angiogenin mRNA in human tumor and normal cells. Biochem. Biophys. Res. Commun. 146:1240-1248, 1987.

17.St. Clair, D.K., Rybak, S.M., Riordan, J.F., and Vallee, B.L.: Angiogenin abolishes cell-free protein synthesis by specific ribonucleolytic inactivation of ribosomes. Proc. Natl. Acad. Sci. USA. 84:8330-8334, 1987.

18.Rybak, S.M. and Vallee, B.L.: Base cleavage specificity of angiogenin with S. Cerevisiae and E. coli. 5s RNA. Biochemistry 27:2288-2294, 1987.

19.Kurachi, K., Rybak, S.M., Fett, J.W., Shapiro, R., Strydom, D.J., Olson, K.A., Riordan, J.F., Davie, E.W., and Vallee, B.L.: Expression of human angiogenin in cultured baby hamster kidney cells. Biochemistry 27:6557-6562, 1988.

20.Rybak, S.M., Lobb, R.R., and Fett, J.W.: Effects of heparin-binding growth factors on protein synthesis and actin mRNA expression. J. Cell. Physiol. 136:312-318, 1988.

21.St. Clair, D.K., Rybak, S.M., Riordan, J.F., and Vallee, B.L.: Angiogenin abolishes cell-free protein synthesis by specific ribonucleolytic inactivation of 40S ribosomes. Biochemistry 27:7263-7268, 1988.

22.Rybak, S.M., Yao, Q.Z., Auld, D.S., and Fett, J.W.: Specific inhibition of ribonucleolytic and angiogenic activities of angiogenin by synthetic peptides. Biochem. Biophys. Res. Commun. 162:535-543, 1989.

23.Rybak, S.M., Saxena, S.K., Ackerman, E.J., and Youle, R.J.: Cytotoxic potential of ribonuclease and ribonuclease hybrid proteins. J. Biol. Chem. 266:21202-21207, 1991.

24.Rybak, S.M. and Youle, R.J.: Clinical use of immunotoxins: Monoclonal antibodies conjugated to protein toxins. Immunology and Allergy Clinics of North America. 11:2 359-380, 1991.

25.Saxena, S.K., Rybak, S.M., Winkler, G., Meade, H., McGray, P., Youle, R.J., and Ackerman, E.J.: Comparison of RNases and toxins upon injection into Xenopus oocytes. J. Biol. Chem. 266:21208-21214, 1991.

26.Rybak, S.M., Hoogenboon, H.R., Meade, H.M., Raus, J.C., Schwartz, D., and Youle, R.J. Humanization of immunotoxins. Proc. Natl. Acad. Sci. USA 89:3165-3169, 1992.

27.Newton, D.L., Ilercil, O., Laske, D.W., Oldfield, E., Rybak, S.M., and Youle, R.J. Cytotoxic ribonuclease chimeras: Targeted tumoricidal activity in vitro and in vivo. J. Biol. Chem. 26719572 19578, 1992.

28.Saxena, S.K., Rybak, S.M., Davie, E., Youle, R.J., and Ackerman, E.J. Angiogen, a cytotoxic tRNase in Xenopus oocytes. J. Biol. Chem. 267:2192-2196, 1992.

29.Rybak, S.M., Newton, D.L., Mikulski, S.M., Viera, A., and Youle, R.J.: Cytotoxic onconase and ribonuclease A chimeras: Comparison and in vitro characterization. Drug Targeting and Delivery. 1:3-10, 1993.

30.Rybak, S.M., Hoogenboom, H.R., Newton, D.L., Raus, J.C., and Youle, R.J. Rational immunotherapy with ribonuclease chimeras: An approach toward humanizing immunotoxins. Cell Biophys. 21:121-138, 1993.

31.Wu, Y.N., Mikulski, S.M., Ardelt, W., Rybak, S.M., and Youle, R.J.: Toxic ribonuclease: A study of the mechanism of onconase cytotoxicity. J. Biol. Chem. 268:10686-10693, 1993.

32.Youle, R.J., Newton, D., Wu, Y.N., Gadina, M., and Rybak, S.M.: Cytotoxic ribonucleases and chimeras in cancer treatment, Critical Reviews. Critical Review of Therapeutic Drug Carrier Systems 10:1-28, 1993.

33.Newton, D.L., Walbridge, S., Mikulski, S.M., Ardelt, W., Shogen, K., Ackerman, S.J., Rybak, S.M., and Youle, R.J.: Toxicity of an anti-tumor ribonuclease to Purkinje neurons. J. Neurosci. 14(2):538-544, 1994.

34.Fett, J.W., Olson, K., and Rybak, S.M. A monoclonal antibody to human angiogenin. Inhibition of ribonucleolytic and angiogenic activity and localization of the antigenic epitope. Biochemistry 33:5421-5427, 1994.

35.Lee-Huang, S., Kung, H.F., Chen, H.C., Huang, P.L., Rybak, S., Huang, P.L., Bourinbaiar, A.S., and Liaw, Y.C. Crystallization and preliminary X-ray analysis of GAP 31, an anti-HIV protein. J. Mol. Biol. 240:92-92, 1994.

36.Lin, J.J., Newton, D., Mikulski, S., Ardelt, W., Kung, H.F., Youle, R. and Rybak, S.: Characterization of the mechanism of cellular and cell-free protein synthesis inhibition by an anti tumor ribonuclease. Biochem., Biophys. Res. Commun. 294:156-162, 1994.

37.Gadina, M., Newton, D.L., Rybak, S.M., Wu, Y.N., and Youle, R.J. Humanized immunotoxins. Therapeutic Immunology 1:54-63, 1994.

38.Walbridge, S. and Rybak, S.M. Immunotoxin therapy of leptomeningeal neoplasia. J. Neuro. Onc. 20:59-65, 1994.

39.Newton, D.L., Nicholls, P.J., Rybak, S.M., and Youle, R.J. Expression and characterization of recombinant human eosinophil-derived neurotoxin and eosinophil-derived neurotoxin-anti transferrin receptor sFv. J. Biol. Chem. 269:26739-26745, 1994.

40.Rybak, S.M., Lin, J.J., Newton, D.L., Kung, H.F., Monks, A., Chen, H.C., Huang, P.L., and Lee Huang, S.: In vitro anti-tumor activity of the anti-HIV agents MAP 30 and GAP 31. J. Int. Oncology 5:1171-1176, 1994.

41.Rybak, S.M., Newton, D.L., and Xue, Y.: RNase and RNase immunofusions for cancer therapy. Tumor Targeting 1:141-147, 1995.

42.Newton, D.L., Xue, Y., Olson, K.A., Fett, J.W., and Rybak, S.M. Angiogenin single-chain immunofusions: Influence of peptide linkers and spacers between fusion protein domains. Biochemistry 35:545-553, 1996.

43.Rybak, S.M., Pearson, J.W., Fogler, W.E., Volker, K., Spence, S.E., Newton, D.L., Mikulski, S.M., Ardelt, W., Riggs, C., Kung, H.F., and Longo, D.L.: Vincristine cytotoxicity is enhanced

by Onconase, an anti-tumor RNase even in the presence of mdr1 expression. J. Natl. Cancer Inst.88:747-753, 1996.

44.Newton, D.N., Pearson, J.W., Xue, Y., Smith, M.R., Fogler, W., Mikulski, S.M., Alvord, G.W., Kung, H.F., Longo, D.L., and Rybak, S.M.: Anti-tumor ribonuclease, combined with or conjugated to monoclonal antibody MRK16, overcomes multi-drug resistance to Vincristine in vitro and in vivo. Intl. J. Oncology 8:1095-1104, 1996.

45. Newton, D.N., Xue, Y., Boque, L., Wlodawer, A., Kung, H.F., and Rybak, S.M.: Expression and Humanization of a Cytotoxic Ribonuclease. Protein Engineering, 10: 463- 470, 1997.

46.Rybak, S.M., Zewe-Welschof, M., Dubel, S., Coy, J., Welschof, M., Newton, D.L., and LittleM.Cloning and Cytotoxicity of Human Pancreatic RNaseA Immunotoxin. Immunotechnology 3:127-136, 1997.

47.Cara, A., Rybak, S.M., Newton, D.L., Crowley, R., Rottschafer, S.E., Reitz, M.S. And Gusella, G.L. Complete Inhibition of HIV-1 replication by combined expression of gag dominant negative mutant and a human ribonuclease in a tightly controlled HIV-1 inducible vector. Gene Therapy 5: 65-75, 1998.

48.Newton, D.L., Boque, L., Wlodawer, A., Huang, ClY. and Rybak, S.M. Single Amino Acid Substitutions at the N-Terminus of a Recombinant Cytotoxic Ribonuclease Markedly Influence Biochemical and Biological Properties, Biochemistry, 37: 5173-5183, 1998.

49. Newton, D.L., and Rybak, S.M. Unique Recombinant Human Ribonuclease and Inhibition of Kaposi's Sarcoma Cell Growth. J. Natl. Cancer Inst., 90:1787-1791, 1998.

50.Smith, M.R., Newton, D.L., Mikulski, S.M. and Rybak, S.M. Cell Cycle Related Differences in Susceptibility of NIH/3T3 Cells to Ribonucleases. Exp.Cell Res, 247: 220-232, 1999.

51. Persic, L., Horn, I., Rybak, S., Cattaneo, A., Hoogenboom, H., and Bradbury, A. scFvs Selected on the 57-76 p21ras Neutralizing Epitope Recognize the Parental Protein. FEBS Lett, 443:112-116, 1999.

52. Rybak S.M. and Newton, D.L. Immunoenzymes. In.:Antibody Fusion Proteins, S.M Chamow and A. Ashkenazi (eds) John Wiley & Sons, Inc., New York, NY, 53-110, 1999.

53. Rybak S.M. and Newton, D.L., Antibody targeted riboucleases for cancer therapy. Minerva Biotechnologica, 10:162-173.

54. Rybak, S.M. and Newton, D.L. Uncloaking RNases, Nature Biotechnology 17:408,1999.

55. Rybak, S.M. and Newton, D.L., Natural and Engineered Cytotoxic Ribonucleases: Therapeutic Potential, Exp. Cell Res. 253:325,1999.

56. Newton, D.L., Pollock, D., DiTullio, P., Echelard, Y., Harvey, M., Wilburn, Bl, Williams, J., Hoogenboom, H.R., Raus, J.D.M. Meade, H.M. and Rybak, S.M. Antitransferrin receptor antibody-RNase fusion protein expressed in the mammary gland of transgenic mice. J. Immunol. Methods. 231:159,1999.

57. Lener M., Horn JR, Cardinale A, Messina S, Nielsen, UB, Rybak SM, Hoogenbom HR, Cattaneo A, and Biocca S. Diverting a protein from its cellular location by intracellular antibodies: The case of p21 Ras. Eur. J. Biochem. 267:1196,2000.

58. Newton, D.L., Pollock, D., DiTullio, P., Echelard, Y, Harvey, M., Wilburn, B., Williams, J., Hoogenboom, H.R. Raus, J.C.M., Meade, H.M. and Rybak, S.M. Functional properties of human ribonuclease fusion proteins expressed in Escherichia coli or transgenic mice. J. Intl. Soc. Tumor Targeting 1:1466,2000.

59. Newton, D.L. and Rybak, S.M. Construction of ribonuclease-antibody conjugates for selective cytotoxicity. Methods in Molecular Medicine 25:27, 2000.

60. Newton, D.L. and Rybak, S.M. Preparation of recombinant RNase single-chain antibody fusion proteins.Methods in Molecular Medicine, 25: 77, 2000.

61. Iordanov, M.S., Ryabinina, Wong, J, Dinh, T, Newton, D.L., Rybak, S.M. and Magun, B.E. Molecular determinants of programmed cell death induced by the cytotoxic ribonuclease: onconase Evidence for cytotoxic mechanisms different from inhibition of protein synthesis, Cancer Res. 60: 1983, 2000.

62. Chen, S.L., Le, S.Y., Newton, D.L., Maizel, JV, and Rybak, S.M. A gender specific mRNA encoding a cytotoxic ribonuclease contains a 3′ UTR of unusual length and structure. Nuc. Acids. Res. 28:2375, 2000.

63. Newton, D.L. and Rybak, S.M, Preparation and Preclinical Characterization of RNase-based Immunofusion proteins, Methods in Molecular Biology 160:1, Nuclease Methods and Protocols, 2000.

64. Yuan, Q.P., Newton, D.L. and Rybak, S.M., Phage display of enzymes. Rec. Res. Devel. Biochem. 2:109,2000.

65. Iordanov MS, Wong J., Newton DL, Rybak SM, Bright, RK, Flavell RA, Davis RJ, Magun BE. Differential requirement for the stress-activated protein kinase/c-jun NH(2)-terminal kinase in RNA damage-induced apoptosis in primary and in immortalized firoblasts. Mol. Cell biol. Res. Commu. 4: 122, 2000.

66 . Newton, D.L., Kaur, G., Rhim, J.S., Sausville, E.A., and Rybak, S.M. RNA damage and inhibition of neoplastic endothelial cell growth: Effects of human vs amphibian ribonucleases, Radiation Research 155: 171, 2001.

67. Newton, D.L., Hansen, H.J., Mikulski, S.M., Goldenberg, D.M., and Rybak, S.M., Potent and Specific Antitumor Effects of an Anti-CD22 Targeted Cytotoxici Ribonuclease: Potential for the Treatment of Non-Hodgkin's Lymphoma, Blood 97:528, 2001.

68. Newton, D.L. and Rybak, S.M., Construction of Antibody RNase fusion proteins, "Antibody Engineering" eds R. Kontermann, S. Dubel, Springer Verlag 667-688, 2001.

69. Newton, D.L., Hansen, H.J., Liu H., Ruby, D, Iordanov, M.S., Magun, B.E., Goldenberg, D.M. and Rybak, S.M. Specifically targeting the CD22 receptor of human B-cell lymphomas with RNA damaging agents. Crit. Rev. Oncol/Hematol 39: 79-86, 2001.

70 Newton DL and Rybak SM, Preparation of Recombinant Rnase Single-chain Antibody Fusion Proteins, Molecular Biotechnology 18:1-14. 2001.

71. Huhn, M., Sasse, S., Tur, M.K. Matthey, B., Schinkothe, T., Rybak, S.M., Engert, A., and Barth,, S. Human angiogenin fused to human CD30 ligand (Ang-CD30L) exhibits specific cytotoxicity against CD30-positive lymphoma. Cancer Research 61, 8737-8742, 2001.

72. Newton, DL and Rybak, SM. Antibody Targeted Therapeutics for Lymphoma: New focus on the CD22 antigen and RNA. Expert Opinion, Oncologic, Endocrine and Metabolic, Ashley Publications, 995-1003, 2001.

73. Hursey, M. Newton, D.L., Hansen, H.J., Ruby, D., Goldenberg, D.M. And Rybak, S.M. Specifically Targeting the CD22 Receptor of Human B-Cell Lymphomas with RNA Damaging Agents: A New Generation of Therapeutics. Leukemia, Lymphoma Research 43: 953-959, 2002

74. Liu , H.T., Newton, D.N., Hansen, H.J., Mikulski, S.M., Goldenberg, D.M., Sausville, E.A. And Rybak, S.M. Targeting the CD22 Receptor with RNA Damaging Agents, Drug Targeting in Cancer Therapy, Humana Press, 109-118, 2002.

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